

What Is Claimed Is:

1. A device for delivering fluid into a vessel wall comprising:
  - a catheter having a first internal lumen and a second internal lumen;
  - an inflatable balloon in fluid communication with the first internal lumen of the catheter and having an exterior surface;
  - at least one fluid passageway in fluid communication with the second internal lumen of the catheter, having an exterior surface and mounted on the exterior surface of the inflatable balloon;
  - at least one injector mounted on the exterior surface of the fluid passageway and in fluid communication with the fluid passageway and second internal lumen of the catheter; and
  - a sealing unit for preventing passage of fluid through the injector.
2. The device of claim 1 further comprising a source of therapeutic fluid in fluid communication with the second internal lumen of the catheter, the fluid passageway, and the injector.
3. The device of claim 1 wherein the injector comprises a hollow protrusion having a first end and a second end.
4. The device of claim 3 wherein the injector further comprises a cutting edge adjacent the second end of the hollow protrusion to penetrate a vessel wall.
5. The device of claim 3 wherein the sealing unit comprises a seal.
6. The device of claim 5 wherein the seal seals the first end of the hollow protrusion.
7. The device of claim 5 wherein the seal seals the second end of the hollow protrusion.

8. The device of claim 1 wherein the sealing unit is shaped to resist fluid flowing adjacent the sealing unit thereby inducing a force on sealing unit, urging the sealing unit to translate, and preventing passage of fluid through the injector.
9. The device of claim 1 wherein the surface of the sealing unit is patterned to resist fluid flowing adjacent the sealing unit thereby inducing a force on sealing unit, urging the sealing unit to translate, and preventing passage of fluid through the injector.
10. The device of claim 1 wherein the sealing unit is coated to resist fluid flowing adjacent the sealing unit thereby inducing a force on sealing unit, urging the sealing unit to translate, and preventing passage of fluid through the injector.
11. The device of claim 5 wherein the seal is substantially spherical in shape.
12. The device of claim 5 wherein the sealing unit further comprises a stem to translate the seal.
13. The device of claim 12 wherein the stem has a first end and a second end,  
wherein the stem projects outwardly from the seal and is substantially aligned  
with the hollow protrusion,  
wherein the first end of the stem is located adjacent to and is attached to the seal,  
and  
wherein the second end of the stem projects radially beyond the second end of the  
hollow protrusion.
14. The device of claim 13 wherein the sealing unit further comprises a cutting edge adjacent  
the second end of the stem to penetrate a vessel wall.

15. The device of claim 5 further comprising a mechanical system for applying a force urging the seal to seal the injector and prevent passage of fluid through the injector.

16. The device of claim 15 wherein the mechanical system is a spring.

17. The device of claim 15 wherein the mechanical system is an elastic band.

18. The device of claim 5 further comprising a bond for maintaining the seal in a sealed position against the injector to prevent passage of fluid through the injector.

19. The device of claim 18 wherein the bond is an adhesive bond.

20. The device of claim 18 wherein the bond is an electrostatic bond.

21. The device of claim 18 wherein the bond is a chemical bond.

22. A device for delivering fluid into a vessel wall comprising:

a catheter having a single internal lumen;

an inflatable balloon in fluid communication with the internal lumen of the catheter, and having an exterior surface;

at least one injector mounted on the exterior surface of the inflatable balloon and in fluid communication with the internal lumen of the catheter and the inflatable balloon; and

a sealing unit for preventing passage of fluid through the injector.

23. The device of claim 22 further comprising a source of fluid in fluid communication with the internal lumen of the catheter and inflatable balloon.

24. The device of claim 23 wherein the source of fluid includes a source of therapeutic fluid.
25. The device of claim 22 further comprising:
  - a source of inflation fluid in fluid communication with the internal lumen of the catheter;
  - a source of therapeutic fluid in fluid communication with the internal lumen of the catheter; and
  - a valve controlling the flow of fluid to the internal lumen of the catheter from the source of therapeutic fluid and from the source of inflation fluid.
26. A method for delivering therapeutic into a vessel wall comprising:
  - inserting a catheter into the vessel of a patient, the catheter having an inflatable balloon with a first internal lumen, a fluid passageway with a second internal lumen, and an injector in fluid communication with the second internal lumen;
  - positioning the catheter at a diseased portion of the vessel within the patient;
  - inflating the inflatable balloon by forcing fluid into the first internal lumen of the catheter to embed the injector into the vessel wall;
  - infusing therapeutic into the vessel wall through the injector by forcing therapeutic fluid into the second internal lumen of the catheter and the fluid passageway; and
  - selectively sealing an injector that does not embed into a vessel wall.
27. A method for delivering fluid into a vessel wall comprising:
  - inserting a catheter into the vessel of a patient, the catheter having an inflatable balloon with an internal lumen, and an injector in fluid communication with the inflatable balloon;
  - positioning the catheter at a diseased portion of the vessel within the patient;
  - inflating the inflatable balloon by forcing fluid into the internal lumen of the

catheter to embed the injector into the vessel wall;  
infusing fluid into the vessel wall through the injector; and  
selectively sealing an injector that does not embed into a vessel wall.

28. The method of claim 27 further comprising:

infusing therapeutic into the vessel wall through the injector by forcing  
therapeutic fluid into the internal lumen of the catheter.